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MUSIC – THE HIGHEST FORM OF ART

Music is more than just notes, more than a succession of tones; it is the highest form of art, giving us strength and inspiration. All those searching for brilliance will therefore also demand the best when it comes to their sound experience.

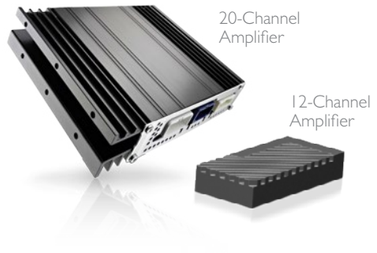
As our vehicles increasingly become the connected hub to our daily lives, the demand for personalization and adaptive experiences is growing. This is particularly true in the premium and luxury segments. HARMAN's SUMMIT connected platform unlocks ultra-personalized system features and intuitive technologies. The result is a multi-sensory audio experience unlike anything on the road today. Whether you want to escape into an immersive acoustic sanctuary that adapts to your mood, or be transported into world-renowned concert halls and jazz clubs of your choosing, SUMMIT puts you in control of your in-vehicle audio experience.



THE PINNACLE OF AUDIO PERFECTION

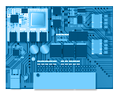
The SUMMIT connected platform eliminates traditional OEM (Original Equipment Manufacturer) packaging and architecture constraints to offer a new level of ultra-luxury experiences. It also breaks new ground by achieving richer sounds at a formidable processing output than the large power-hungry amplifiers it replaces.

TRADITIONAL APPROACH



VS

SYSTEM-ON-CHIP STRATEGY



FLEXIBLE SCALABILITY

The revolutionary System-On-Chip (SOC) strategy minimizes part complexity and opens up new perspectives for system design. Likewise, SUMMIT is expandable at will and with its strong personalization tools, the platform allows for a seemingly endless number of user features.

SOURCE CONNECTIVITY

Multiple sound sources can be processed simultaneously and be reproduced individually for each seat zone, allowing every passenger to be engaged in the entertainment experience.

PERFORMANCE SCALABILITY

Additionally, owing to its strong processing power, more speakers may be integrated into the car to create a soundscape of unrivalled brilliance without the need of larger, more energy and space consuming amplifiers.

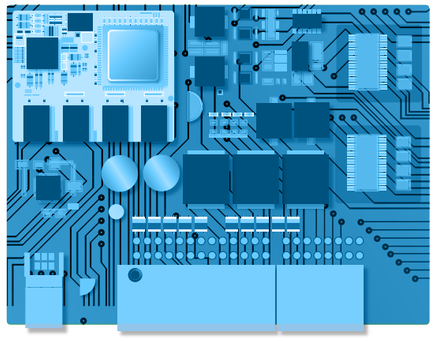
UPDATABLE FOR Life time

And the best thing about it: while traditional audio features have to be fixed 2-3 years before the actual start of production (SOP), the SUMMIT system can be updated throughout the vehicle's development cycle as well as post-purchase.

A breathtakingly new concept, that significantly contributes to an in-car experience far beyond just audio.

HOW IT WORKS

The centerpiece of SUMMIT is a small yet even more powerful chipset that incorporates a scalable architecture and the latest technology features. This approach allows for larger multi-channel system processing, higher computing performance, wider integration options, and less energy consumption. The groundbreaking SOC approach combined with key ingredient technologies such as A2B, EVAB, EMOST, MOST and Wi-Fi opens up a huge potential for future audio signal processing excellence. By integrating cutting-edge algorithms like Virtual Venues, ISZ and Connected Jukebox, every ride can be tailored to each occupant's needs.



FEATURED TECHNOLOGIES

PERSONALIZED, CONNECTED, ADAPTIVE EXPERIENCES

Sound To Target™ (S2T™) is a combination of Engine Order Cancellation (EOC) and internal Electronic Sound Synthesis (iESS). The system simultaneously reduces low frequency engine noise and synthesizes harmonics to enhance the engine sound. HARMAN's RNC technology reduces unwanted road noise inside the car by generating an anti-noise similar to the anti-noise created in noise-cancellation headphones.

Built upon HARMAN's patented QuantumLogic Surround digital signal processing technology, QuantumLogic Immersion adds a third dimension to in-car sound by introducing additional overhead speakers.

Clari-Fi™ is a revolutionary technology that brings compressed music back to life. Clari-Fi analyzes digital audio files in realtime and corrects waveform deficiencies based on the existing audio information.

ISZ (Individual Sound Zones) is intended to create individual listening zones for each passenger, enabling passengers to personalize their own audio experiences with limited disruption or interference from other vehicle occupants.

CONNECTED JUKEBOX

Create a connected jukebox where every passenger is engaged in the musical selection using simultaneous device connections together with social mode.

VIRTUAL VENUES

Whether your favorite concert hall is the Sydney Opera House, Royal Albert Hall or Teatro alla Scala in Milan, Virtual Venues allows you to choose your destination, taking you on a musical tour of the world.

PERSONAL BASS IMPACT

Invisibly mounted transducers in the seats bring you closer to the music than ever before. As a result, you do not only hear the bass, you literally feel it with every fiber of your body. Of course, the impact can be adjusted to every passenger's individual preferences and mood.

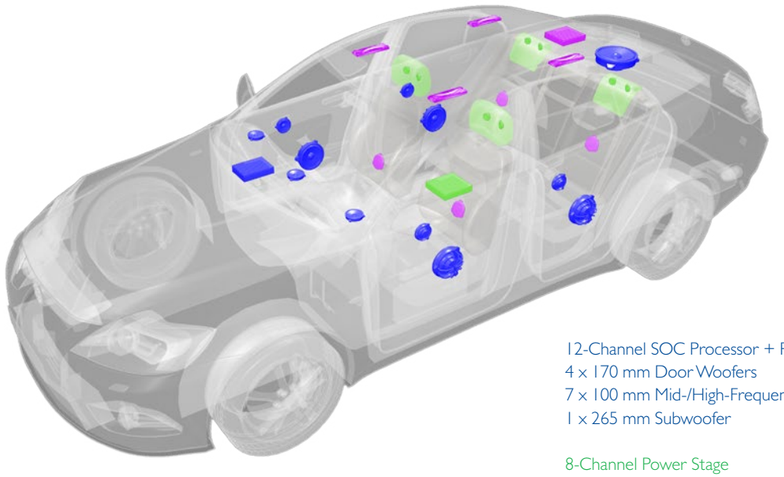
FLEXIBLE SCALABILITY EXAMPLE

SUMMIT gives OEMs (Original Equipment Manufacturers) the freedom of a truly scalable portfolio strategy to provide consumers with more personalized experiences than ever before, while also minimizing part complexity. SUMMIT can provide luxury and ultra-luxury audio experiences that can include 24+ individual channels of amplification and equalization. Simultaneously it is able to deliver HARMAN's latest and greatest proprietary DSP (Digital Signal Processing) based technologies. These types of experience would traditionally require four to five DSP's and microcontrollers, but with SUMMIT this complexity and processing is reduced to one single chip. Ultimately this radically new approach enables a scalable software and hardware design that can be upgraded throughout the lifecycle of the vehicle.

PREMIUM
8-12 SPEAKERS

LUXURY
12-24 SPEAKERS

ULTRA-LUXURY
24+ SPEAKERS



12-Channel SOC Processor + Power Stage
4 x 170 mm Door Woofers
7 x 100 mm Mid-/High-Frequency Transducers
1 x 265 mm Subwoofer

8-Channel Power Stage
8 x 40 mm Headrest Speakers

8-Channel Power Stage
4 x In-Seat Tactile Transducers
4 x Electrodynamic Planar Loudspeakers (EDPLs)

PERSONALIZED, CONNECTED & ADAPTIVE

KEY CONSUMER BENEFITS

- Access to the latest audio features throughout the life of the vehicle
- Cutting edge experiences:
  Virtual Venues | Connected Jukebox | Individual Sound Zones | HALOsonic Suite of Technologies
- Highest acoustic performance offered in the market
- Personalized control with and adaptability

KEY OEM BENEFITS

- Access to the latest technology features throughout the vehicle's development cycle
- Easy upgradability to offer tech upgrades at year and mid-cycle events
- Quality assurance via OTA updates
- OEM personalized technology differentiator and revenue generator via companion apps
- Offers a platform approach to minimize part complexity
- Expandable modular hardware platform that's easy to package and upgrade
- OTA telemetry and OTA diagnostics

